Database Management Systems

Course Code:

CSE 348

Course Period:

Spring

Course Type:

Core

Credits:

3

Theoric:

2

Practice:

0

Laboratory Hour:

2

ECTS:

5

Prerequisite Courses:

Data Structures [1]
Course Language:

English

Course Objectives:

The aim of this course is to provide the principles and concepts of database management systems.

Course Content:

Design algorithms and applications; entity-relationship model; hierarchical, network, relational databases; query languages; relational algebra and calculus; data dependencies; normal forms; concurrency, integrity and security issues; term project.

Course Methodology:

1: Lecture, 2: Question-Answer, 3: Lab, 4: Case-study

Course Evaluation Methods:

A: Testing, B: Experiment, C: Homework, D: Project

Course Learning Outcomes	Program Learning Outcomes	Teaching Methods	Assessment Methods
1) Adequate knowledge in database management systems concepts; ability to use theoretical and applied information in this area to model and solve engineering problems.	1,2,3,4	1,2,3,4	A,C,D
2) Ability to design and implement properly structured databases that match the standards based under realistic constraints and conditions.	1,2,3,4,6	1,2,3,4	A,C,D
3) Ability to use SQL language for constructing and utilizing database applications that meet the needs of engineering problems.	1,2,3,4,6	1,2,3	A,C,D

COURSE CONTENT

Week	Topics	Study Materials
1	Introduction to the Database Management Systems	Textbook
2	The Entity-Relationship Model	Textbook
3	Generalization, Aggregation, Design of an E-R Database Scheme	Textbook
4	Relational Algebra	Textbook
5	Query Processing	Textbook
6	Modification of the Database, Views	Textbook
7	SQL I	Textbook

8	SQL II	Textbook
9	Integrity Constraints	Textbook
10	Relational Database Design	Textbook
11	Trigger and Procedure	Textbook
12	Midterm Exam	Textbook
13	Web Based Application Design, XML and XSLT	Textbook
14	Normalization, Normal Forms	Textbook

RECOMMENDED SOURCES

Textbook	Raghu Ramakrishnan, Johannes Gehrke, Database Management Systems, 3rd Edition, McGraw-Hill, 2003.
Additional Resources	Lecture Notes: http://aksayan.com/abs/courses/courseInfo.php?course_id=1&co_id=7 [2] Lab material: http://cse.yeditepe.edu.tr/coadsys/course/view.php?id=2 [3] Silberschatz, A., Korth, H. F., Sudarshan, S., Database System Concepts, 5th Edition, McGraw-Hill, 2005. Celko, J., SQL Puzzles & Answers, Morgan Kaufmann Publishers, 1997. Gruber, M., Mastering SQL, Sybex, 2000. Ladanyi, H., SQL, Sams Publishing, 2000. Ünal Yarımağan, Veri Tabanı Sistemleri, Akademi ve Türkiye Bilişim Vakfı, 2000.

ASSESSMENT

IN-TERM STUDIES	**NUMBER**	**PERCENTAGE**
Midterm	1	39
Assignments	3	7
Lab Work	10	39
Term Project	1	15
Total		**100**
CONTRIBUTION OF FINAL EXAMINATION TO OVERALL GRADE		35

CONTRIBUTION OF IN-TERM STUDIES TO OVERALL GRADE	65
Total	**100**

COURSE'S CONTRIBUTION TO PROGRAM

No	Program Learning Outcomes	Contribution				
		1	2	3	4	5
1	Adequate knowledge in mathematics, science and engineering subjects pertaining to the relevant discipline; ability to use theoretical and applied information in these areas to model and solve engineering problems.					**X**
2	Ability to identify, formulate, and solve complex engineering problems; ability to select and apply proper analysis and modeling methods for this purpose.					**X**
3	Ability to design a complex system, process, device or product under realistic constraints and conditions, in such a way as to meet the desired result; ability to apply modern design methods for this purpose.					**X**
4	Ability to devise, select, and use modern techniques and tools needed for engineering practice; ability to employ information technologies effectively.					**X**
5	Ability to design and conduct experiments, gather data, analyze and interpret results for investigating engineering problems.					
6	Ability to work efficiently in intra-disciplinary and multi-disciplinary teams; ability to work individually.			**X**		
7	Ability to communicate effectively both orally and in writing; knowledge of a minimum of one foreign language.					
8	Recognition of the need for lifelong learning; ability to access information, to follow developments in science and technology, and to continue to educate him/herself.					
9	Awareness of professional and ethical responsibility.					
10	Information about business life practices such as project management, risk management, and change management; awareness of entrepreneurship, innovation, and sustainable development.					
11	Knowledge about contemporary issues and the global and societal effects of engineering practices on health, environment, and safety; awareness of the legal consequences of engineering solutions.					

ECTS ALLOCATED BASED ON STUDENT WORKLOAD BY THE COURSE DESCRIPTION

Activities	Quantity	Duration (Hour)	Total Workload (Hour)
Course Duration (Excluding the exam weeks: 13x Total course hours)	13	4	52
Hours for off-the-classroom study (Pre-study, practice)	14	2	28
Midterm examination	1	2	2
Homework	3	2	6
Project	1	34	34
Final examination	1	3	3
Total Work Load			125
Total Work Load / 25 (h)			5.0
ECTS Credit of the Course			5